MileMarker *(Dump Valve On)*			Warn			Warn		
4,500			3,250			5,000		
14			12ft, 4in			3ft, 7in		
6 min, 50.00 sec			1 min, 54.16 sec*			1 min, 6.03 sec*		
Before Pull	**After Pull**	**Difference**	**Before Pull**	**After Pull**	**Difference**	**Before Pull**	**After Pull**	**Difference**
14.40	14.40	0%	13.22	12.92	-2.3%	13.25	13.17	-.6%
161	5	+39.8%	117	213	+82%	113	174	+53.9%
128	137	+7%	125	137	+9.6%	90	102	+13.3%
155	218	+40.6%	146	163	+11.6%	122	137	+12.3%
below 140	8	+91.4%	140	140	0%	below 140	below 140	0%
177	0	-4.1%	186	222	+19.4%	155	192	+23.9%
N/A	N/A	N/A	137	166	+21.2%	124	148	+19.4%

**This was the time and distance at which the winch stopped moving the load. Peak amp draw with Warn winch: 270 amps*

Next, we swapped to the Warn winch and tested pulls with the truck's engine at 2,000 rpm. The XD9000i was able to drag 3,250 pounds only 12 feet, 4 inches before it stopped pulling and the motor smoked. We forced the winch to pull the full 20 feet, which took three pulls separated by two cool-down periods of 2 minutes each for a total time of 7 minutes, 23 seconds. Peak amp draw was 270, but we had no problem restarting the engine.

After letting the electric winch motor cool, we attempted to pull the Jeep and the Chevy hooked together. This time, the Warn winch was able to peak at a 5,000-pound load, but dragged it only 3 feet, 7 inches before stopping. Warn pointed out that since its winch has more cable it was forced to make those pulls with more layers on the drum than the MileMarker. With any winch, more layers on the drum equals less pulling power.

This Raytek heat gun was supplied by Reb-co so we could determine surface temperatures of vehicle components throughout the evaluation. Just pull the trigger and the temp reads on the digital display; in this case, it's 193-degree intake-manifold burritos.

WINCHING DURATION

To see if winch performance would degenerate with repeated use, we reeled out 30 feet of cable and pulled a Jeep with locked wheels 20 feet three

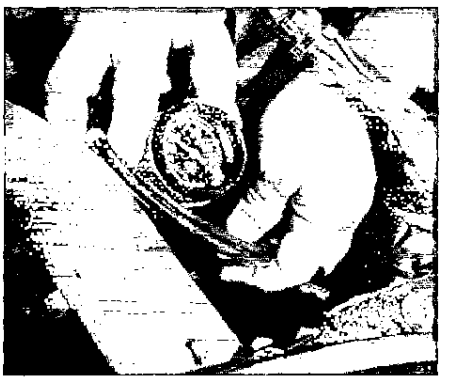
SURGEON GENERAL'S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, And May Complicate Pregnancy.

No time for bull in the pits.
No room for it in our smokes.

WINSTON
NO ADDITIVES
TRUE TASTE

Source: https://www.industrydocuments.ucsf.edu/docs/syln0004

HYDRAULIC vs ELECTRIC WINCH SHOOTOUT



For temperature in the power steering pump, we used an Auto Meter oil temp gauge and dipped the sensor into the fluid.

WINCHING DU

Pull	Mil
First pull	3 m
Second pull	3 m
Third pull	3 m

Vehicle Specs	Before Pulls	After Pulls	Difference
Battery condition *(volts)*	14.00	14.40	3%
Winch motor temp *(°F)*	122	168	
Battery temp *(°F)*	126	133	5%
Steering pump temp *(°F)*	113	159	7%
Steering fluid temp *(°F)*	below 140	below 140	
Alternator temp *(°F)*	126	188	2%
Voltage regulator *(°F)*	113	122	1%

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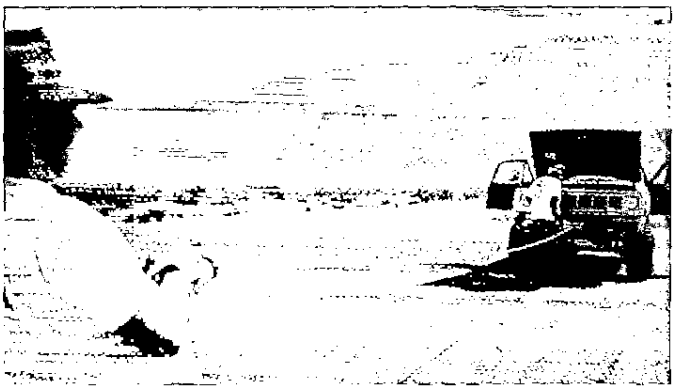
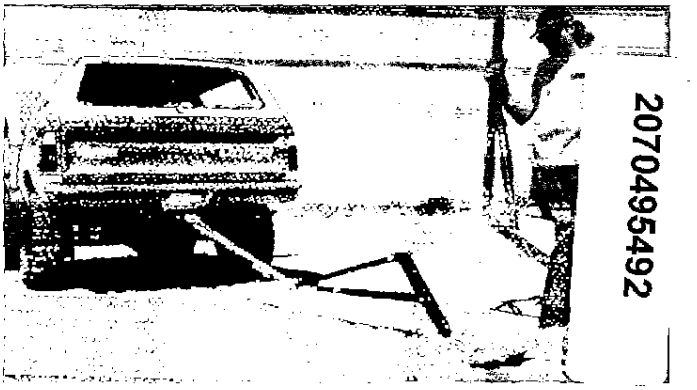
LINE SPEED vs. ENGINE RPM

Winch	MileMarker		Warn	
Engine rpm	Idle	2,000	Idle	2,000
Peak load pulled *(lbs)*	3,250	3,250	3,250	3,250
Distance pulled *(ft, in)*	20	20	12	12 ft, 4 in
Time to pull	3 min, 21.56 sec	2 min, 25.75 sec	2 min, 40.31 sec	1 min, 54.16 sec



Our no-load reel-in time testing was handled with Péwé supporting the cable and Freiburger directing it onto the drum.



To secure the Ramcharger for the flat-pull testing, we fixed it to the desert floor with two Pull-Pal land anchors. We were way impressed with the holding power.

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times in a row. We already learned that the Warn winch could not complete one 20-foot pull under these conditions. However, the MileMarker pulled 3,250 pounds three times in a row with the engine at idle. The pulling time increased about 15.5 percent from the first pull to the third.

LINE SPEED vs. ENGINE RPM

This time we altered the engine rpm to see if it would affect line speed. According to MileMarker, one of the main benefits of the Hypro winch is that its performance is unaffected by engine rpm. In fact, we found that pull times were reduced by raising rpm from idle to 2,000. MileMarker explained that the pulling power is dictated by hydraulic line pressure—which does not change with engine rpm—but that speed is affected by flow rate, which can change with engine speed. MileMarker also warned that increasing engine rpm would heat the power steering fluid, and the fluid temp did rise from under 140 degrees to slightly above 200 degrees while we conducted this test.

The Warn electric winch was also sensitive to engine rpm, pulling the 3,250-pound load 12 feet—40 percent faster when the engine speed was at 2,000 rpm instead of idle.

BRAKE ABILITY

After each flat-pull test, we left full weight on the cable and watched the tension gauge. With the Warn winch, the gauge held its reading continuously. The same test with the MileMarker revealed that the cable would slowly spool off the drum until cable tension was down to 1,000 pounds. We found this problematic on the trail, as up to 8 inches of cable would creep off the drum, allowing the vehicle to roll backward.

MileMarker says that this problem can be eliminated with its two-speed winch because you can positively lock the winch into high and low range simultaneously. However, you have to get out of the vehicle to do that, and sometimes it's difficult to engage both gears with tension on the cable.

TRAIL TESTING—MILEMARKER

We attacked Surprise Canyon with the MileMarker winch first and found it unable to drag the Dodge up the first obstacle. After several attempts, the truck's power steering pump failed entirely. We installed a new pump, flushed the system twice, and added new fluid.

Even with the second pump, the MileMarker couldn't pull the truck up Surprise Canyon. Again it stalled halfway up the first obstacle, then we couldn't power back down because the winch-control solenoids failed. We'd had problems with the winch not responding to input from the hand control several times earlier, which may have been caused by residue in the fluid from the failed power steering pump.

Source: https://www.industrydocuments.ucsf.edu/docs/syln0004